RRO ^DogPark Prototype

Pets! Pets! Pets! Pets! We're looking at prototyping an AI-based pets model to encourage engagement that is both socially-oriented and encourages consecutive daily sessions in a way that feels natural.

Goals

1. Yes, you can pet the dog
2. Prototype an experiment to see if behavior-oriented pets are fun
3. Social engagement ++
4. Players can have at least one pet each, and getting a pet feels like an accomplishment
5. The pet is interactive with both the "owner" and other players
6. The pet feels unique
7. The pet seems like a creature independent of the player, with a mind of its own (more like Nintendogs than Pokemon)
8. Players want to interact with their pet every day for emotionally-centered reasons (e.g. "I should go play with Sparky in Rec Room")
9. Engagement with the pet has depth

Non-goals

1. Pets can interact with everything in the environment
2. Pets are useful to the player in a practical way

Features We Want in the Future (but not in this prototype)

1. Breeding system to make pets with rare and desirable aspects
2. Wearables for pets
3. UGC customizable animation skeleton to build pets
4. Tradeable/sellable pets
5. Pets that can follow the player to ^DormRoom, ^RecCenter, then anywhere
6. Pets that interact with other pets
7. Pets that can be trained (by putting behaviors on voice or gesture cue)
8. Pets that can move over terrain that isn't flat

How It Works

Players can go to a specific room on the test server to play with and try to adopt a dog*.

1. **There's a ^DogPark** room on the test server using ^Park as the base
    a. Make a little fenced-off area with a sign near the entrance where the Adoptable pets will go
2. **Dogs* instantiate in the ^DogPark**
    a. ^DogPark has 2 areas: one for dogs that aren't owned (Adoptables Area) and a larger area for players to play with the dogs that they own
    b. When a player enters ^DogPark, any dogs that player owns will be instantiated
        i. if the player does not own a dog, the Adoptables Area populates with dogs with randomized breeds and stats until there are 5 total in the Adoptables Area (dog prefabs are created from stock assets)
3. **Dogs have stats** that are static (Traits) and influenced by environment (Affinities) and stored independently from the ^DogPark room (so that other rooms can access the data)
4. **Dogs have static Traits**
    a. The personality of a dog is established by their Traits values generated at initial dog creation
    b. Minimum value is 1, maximum possible value is 20
    c. Traits are set at dog creation each with a score determined by a 3d6 random roll +/- breed modifiers
        i. Independence (how confident is this dog to do their own thing?)
        ii. Drive (when this dog wants something, how hard to they try?)
        iii. Reactivity (how likely is this dog to notice something?)
        iv. Softness (how sensitive is this dog to reinforcement and punishment?)
5. **Dogs have variable Affinities**
    a. The likelihood a dog will do or not do a particular thing at the time is determined by Affinities. Some change quickly (within a session), while some are slow and require consecutive day sessions to shift
    b. Minimum value is 0, maximum possible value is 5
    c. Initial Affinity values are set at dog creation each with a score determined by a 1d3 random roll +/- breed modifiers
    d. Affinities change based on interactions and modifiers
        i. Sociability is assigned a separate value for each player that pets the dog

1. increased 1 once per day the dog has positive interactions with that player's avatar (see section 8-d) or eats a player's consumable
2. decreased 2 once per day the dog has negative interactions with that player's avatar (see section 8-d)

ii. Trainability is assigned a separate value for each player that gives the dog food (the dog eats their consumable)

1. increased 1 for each consecutive day the dog interacts with the player
2. decreased 1 for each 3 consecutive days that pass without interacting with the player

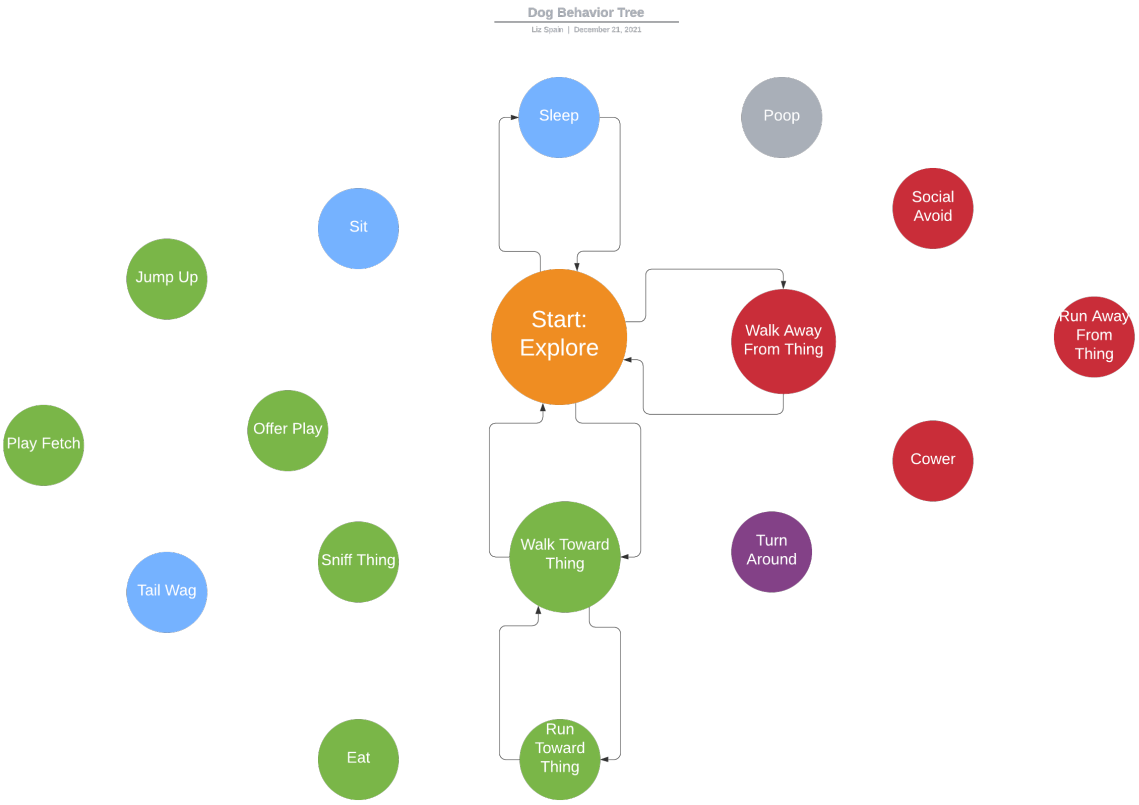
iii. Want Food

1. increased 1 for each 5 min that have passed since the dog last ate a consumable
2. decreased 1 for each consumable the dog eats

iv. Want Play

1. increased 1 for each other dog within Reactivity/2 in meters
2. increased 1 for each toy that is held or thrown within Reactivity/2 meters of the dog
3. decreased 1 for each poop that is within Reactivity/2 meters of the dog
4. decreased 1 for each ToxMod flagged language (above a specific score?} that happens in the room

6. **Dogs have breeds**
   a. For the purposes of prototyping, there are 3 dog breeds:
      i. Bull terrier (high Independence & Drive, low Reactivity & Softness)
      ii. Chihuahua (low Independence & Drive, high Reactivity & Softness)
      iii. Cat (high Independence, moderate Reactivity & Drive, low Softness)
   b. Breed Modifiers for starting Traits and Affinities can be found in this spreadsheet's Breed Stat Modifiers tab
7. **Dogs have Names**
   a. Generated randomly at creation from this spreadsheet's Random Dog Names tab
   b. Prefaced with "Adoptable" when the dog has not yet been adopted
   c. Dog nametags get the same visual treatment as player nametags
   d. Customizable after the dog is adopted
8. **Dogs have behaviors**
   a. dog behaviors are governed by a state machine built with "stat check" gates
      i. each stat check gate is calculated from a Trait & an Affinity
      ii. the execution of any new behavior is based on a probability
         1. The dog performs the new behavior (True) if a randomly generated value between 1-100 =< Trait*Affinity
         2. This way, a dog at max stats for the relevant Trait & Affinity (20 & 5, respectively) performs the new behavior 100% of the time
         3. A dog at average stats for the relevant Trait & Affinity (10.5 & 2) performs the new behavior 21% of the time (dogs without specific motivating factors tend to wander or sleep)
         4. The intent of this stat weighting is that Affinities, which shift in the moment, have the greatest influence on dog behavior.
      iii. behaviors follow this tree: [insert behavior tree here]



b. behaviors include:
    i. Sleep
    ii. Sit
    iii. Explore
        1. includes wandering around and sniffing at “nothing”
    iv. Offer play
    v. Play fetch
    vi. Poop
    vii. Eat (also used for drinking)
    viii. Walk toward thing
        1. Follow player (special case of Walk toward thing)
    ix. Run toward thing
    x. Walk away from thing
    xi. Run away from thing
    xii. Turn around
    xiii. Social avoid (this is chosen from copies of other behaviors --but are in a separate part of the behavior tree to reflect the differing context)
        1. Walk away from thing
        2. Sniff
        3. Paw lift
    xiv. Bark at thing
    xv. Sniff thing
        1. Can be high
        2. Can be on the ground (Sniff Low)
    xvi. Jump up (go up on hind legs, does not move onto raised areas)
    xvii. Tail wag
    xviii. Cower
c. behaviors are chains of stock animations
    i. Animations start with the basics included with stock package: Idle (really a paw lift), Walk, Run, Eat, Bark, Sit Start (sitting down), Sit Idle, and Sit Up *(see video below for these animations + Sniff Low)*
    PetsExperiments - SampleScene - PC, Mac & Linux Standalone - Unity 2019.4.26f1_ _DX11_ 2021-12-01 16-00-15.mp4
        1. And add these additional ones: Lie Start (lying down), Sleep, Lie Up (get up), Sniff Low, Sniff High, Play Bow, Poop, Tail Wag, Up On Hind Legs, Cower
    ii. animations have associated sounds that are breed-specific
d. behaviors interact with player avatars
    i. Kind words: player speaks while looking at the dog (dog is near reticle)
    ii. Harsh words
    iii. Soft touch
    iv. Hard touch
    v. Toy thrown
    vi. Toy not thrown
e. behaviors react to specific elements in the room
    i. Player avatars
    ii. Consumables
    iii. Positive dog items
        1. Throwing dog toy -let’s use the existing frisbee from disc golf since that already has a pretty fun UX interaction
        2. Dog house
    iv. Negative dog items
        1. Dog poop
    v. end of pathway

9. **Dogs can be adopted**
a. When a player reaches Sociability max (5) for an adoptable dog,
    i. the dog will follow that player (walk toward thing if <=10m, run toward thing if >10m)
    ii. if dog is within 2m of player and player looks at dog, dog sits
b. After petting a dog that has max Sociability, the player gets a UI pop-up that says “[dogname] would like to be your pet!
c. after 2 min of following the player, if the player has not petted the dog, Sociability is decreased 1
d. When a player leaves a room and the dog they’ve adopted is at Sociability 0 for that player, that dog is removed from the database. In practice, this means that if a player is unkind to their dog 3-5 days they’ve visited (without kindness-only days between), that dog goes to live with a nice family on a farm upstate. (be nice to imaginary friends, kids)

*Not all dogs are dogs. Some dogs are cats.

Analytics

For internal test before release to

Trust & Safety

Testing